

Ministry of Forests

Ministry of Environment Lands and Parks

Cariboo Region
Strengthening Sustainable Forest Management
Suggested projects
For 2000/01

November 1999

105-04691/

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Introduction

This report has been prepared to assist Forest Renewal BC (FRBC) and its Multi-year (MYA) and Annual Agreement (AA) holders with identifying projects that could be carried out to meet the Strengthening Sustainable Harvest Management (SSFM) Resource management plan activity objectives.

The projects were identified at a joint MOF/MELP/FRBC meeting held on November 2, 1999. The attendees were: from MOF - Ray Leduc, Eric Johansen, Harry Jennings, Ordell Steen, Harold Armleder and Rick Dawson, from MELP - Clinton Webb and Troy Larden and from FRBC - Stan Gripich.

This report is intended to supplement the SSFM Resource Management.

Included in the report are 2 tables. Table 1 summarizes the projects that were identified, the funding required for 2000/01, the term of the project in number of years or M if the total number of years is unknown and the individual responsible for preparing the brief written description for each project. Also included in the report are brief project descriptions that include a short description of the project and the intended results, the funding required for 2000/01, a recommended delivery mechanism and the agency contact for the project.

This information is intended to assist FRBC and MYA and AA holders with the preparation of Investment Work plans, but does not include sufficient information for preparation of Standards agreements. Standards agreements will be prepared co-operatively between the agency contacts and the MYA and AA holders.

Table 1. Project summary listing

Activity	Project	Funding required	Term (1 Year or Multi year (M))	Responsible for Description
CCLUP Biodiversity Targets	1. Old and Mature Forest Attribute Definition – with focus on Idf	\$50,000	M	Clinton Webb
	2. MPB and PFT Seral Contribution	\$50,000	M	Clinton Webb
	2. Patch size analysis Pilot Chilcotin Forest District	\$20,000	M	Clinton Webb
CCLUP Mule Deer Targets	Completion of mapping for MDWR management Plans. Licensees can select from their operating areas. Woodlot licensees in Quesnel and Horsefly Districts encouraged to participate.	\$175,000	M	Troy Larden
CCLUP Fisheries/Riparian Targets	1. Riparian Buffer sampling Chilcotin Forest District SBPS and Idf BEC zones	\$33,600	M	Harry Jennings
	2. Regional Lakes Classification Compilation of existing information for Horsefly, Williams Lake and Quesnel Forest Districts	\$56,000	M	Troy Larden
	3. Fisheries Inventory – Region Wide. 1:20,000 overview stream inventories	\$11,200	M	Troy Larden
	4. Winter Limnology – Region Wide	\$11,200	M	Troy Larden
	5. Regional Digital Rollup Streams and Lakes	\$17,100	I	Troy Larden
	6. Regional Lake Inventory (Fish)	\$112,000	M	Troy Larden
	7. Industry led (MELP administered) stream projects Quesnel Forest District (Slocan, Tolko and Weldwood	\$200,000	M	Troy Larden
	8. Weldwood Williams Lake Stream Inventories	\$90,000	M	Troy Larden
	9. Chilcotin Forest District YKW or Riverside Stream Inventory on MPB harvesting areas.	\$145,000	M	Troy Larden
	10. 100 Mile House Forest District Ainsworth – Bonaparte fish Inventory	\$110,000	M	Troy Larden

Activity	Project	Funding required	Term (1 Year or Multi year (M))	Responsible for Description
CCLUP Visual Targets	Refine existing visual resource inventories – Chilcotin and Williams Lake Forest Districts	\$50,000	M	Harry Jennings
CCLUP Watershed/Fisheries Targets	1. Watershed integrity Analysis - ECA Analysis - Channel assessments Bridge and Bonaparte Watersheds	\$75,000	M	Troy Larden
	2. Horsefly River juvenile assessment	\$35,000	M	Troy Larden
CCLUP Caribou Targets	1. Eastern Caribou telemetry	\$72,800	M	Troy Larden
	2. Itcha Igachuz Habitat Mapping	\$56,000	M	Troy Larden
	3. Quesnel Lake Telemetry	\$50,400	M	Troy Larden
	4. Western Caribou – Kappan telemetry	\$72,800	M	Troy Larden
	5. Adaptive Management Monitoring - Mount Tom (Quesnel FD) - Satah and Bald Face Mountain (Chilcotin FD)	\$50,000 \$25,000	M M	Harold Armleder
CCLUP Wildlife Targets	1. Moose Inventory - GPS Collaring & Tracking of Wetland Buffer Use Williams Lake FD and Big Creek - Wetland Classification Williams Lake FD and Big Creek - Population Inventory Region wide	\$110,400 \$33,600 \$56,000	M M M	Troy Larden Troy Larden Troy Larden
	2. Grizzly Bear Habitat use telemetry	\$180,000	M	Troy Larden
	3. Furbearer Inventory Anahim Lake Area	\$57,000	M	Troy Larden
	4. Red/Blue Grassland Species Lower Chilcotin/Fraser River Basins	\$80,000	M	Troy Larden
	5. Wetland Classification Anahim Lake Area	\$40,000	M	Troy Larden

Activity	Project	Funding required	Term (1 Year or Multi-year (M))	Responsible for Description
CCLUP Water Quality & Quantity	1. Station Operation (Judson Ck, Sheriden Ck, Windy Ck, Bridge Ck)	\$53,760	M	Troy Larden
	2. Station Monitoring (new location)	\$13,440	M	Troy Larden
	3. Station Operation (Joe Ross Ck)	\$7,650	M	Troy Larden
	4. Station Operation (Clinton Ck Community Watershed)	\$7,392	M	Troy Larden
	5. Horsefly River sediment Monitoring	\$22,400	M	Pat Teti
	6. Horsefly Snow melt	\$11,200	M	Pat Teti
	7. West Fraser Mills Ltd Water Quality Project	\$70,000	M	Troy Larden
CCLUP Grazing Targets	1. Range Reference Areas Region Wide	\$65,000	M	Harry Jennings
	2. Range encroachment Inventory of Timber on Open Range Williams Lake and 100 Mile House TSA's	\$20,000	M	Harry Jennings
CCLUP Tourism/Recreation Targets	1. Tourism and Recreation Opportunity Studies in each Forest District on current and future uses	\$150,000	M	Brenda Hartley
CCLUP Wildcraft Targets	1. Inventory of Wildcraft activities and associated management issues in Cariboo Forest Region	\$10,000	M	Harry Jennings
Timber Supply Review	1. TRIM 2 Region Wide	\$500,000	3	Troy Larden
	3. Unsalvaged Losses Pilot study of survey method for tracking losses due to blowdown	\$20,000	M	Eric Johansen Ray Leduc
	3. Mountain Pine Beetle Workshop	\$50,000	1	Eric Johansen Ray Leduc
	4. Growth and Yield Remeasurements - Quesnel TSA and TFL 52	\$195,000	M	Eric Johansen Ray Leduc
	5. Monitoring SIBEC (Managed Stands Monitoring)	\$10,000	1	Eric Johansen Ray Leduc
	6. Prognosis Calibration localized to Cariboo Region BECs	\$50,000	M	Eric Johansen Ray Leduc

Activity	Project	Funding required	Term (1 Year or Multi year (M))	Responsible for Description
Timber Supply Review	6. TIPSy OAF Adjustments by TSA and TFL	\$150,000	M	Eric Johansen Ray Leduc
	8. ESA adjustments – determination of Correlation of TSM to ESA's for CFR	\$50,000	1	Eric Johansen Ray Leduc
	9. Root Rot Prediction Model Review for application to CFR	\$20,000	1	Eric Johansen Ray Leduc
	10. Taper Equation Localization by BEC – Review reports and prepared recommendations for application in Cariboo Region TSA's	\$5,000	1	Eric Johansen Ray Leduc
	11. Growth and Yield Maintenance Region Wide	\$15,000	M	Eric Johansen Ray Leduc
	12. Main Road width and Ingress on roads and trails	\$50,000	1	Eric Johansen Ray Leduc

Table 2. Comparative funding summary

Activity	RMP funding requirement	Recommended funding by FRBC	Project Totals	Project total variance from recommended funding	Cumulative difference
CCLUP Biodiversity	200,000	200,000	120,000	80,000	80,000
CCLUP Mule Deer	160,000	160,000	175,000	-15,000	65,000
CCLUP Fisheries Riparian Targets	2,055,000	650,000	786,000	-136,000	-71,000
CCLUP Visual Targets	50,000	150,000	50,000	100,000	29,000
CCLUP Watershed Fisheries Targets	220,000	200,000	110,000	90,000	119,000
CCLUP Caribou Targets	250,000	250,000	372,000	-122,000	-3,000
CCLUP Wildlife Targets	1,330,000	517,000	557,000	-40,000	-43,000
CCLUP Water Quality and Quantity	105,000	105,000	185,842	-80,842	-123,842
CCLUP Grazing Targets	85,000	85,000	85,000	0	-123,842
CCLUP Tourism recreation Targets	150,000	150,000	150,000	0	-123,842
CCLUP Wildcraft Targets	10,000	10,000	10,000	0	-123,842
TRIM 2	500,000	500,000	500,000	0	-123,842
Unsalvaged Losses	20,000	20,000	20,000	0	-123,842
MPB Workshop	30,000	30,000	50,000	-20,000	-143,842
G&Y Remeasurements	195,000	195,000	195,000	0	-143,842
SIBEC	500,000	0	0	0	-143,842
SIBEC Monitoring	10,000	10,000	10,000	0	-143,842
Prognosis Calibration	50,000	50,000	50,000	0	-143,842
OAF adjustments	150,000	150,000	150,000	0	-143,842
ESA Assessments	50,000	50,000	50,000	0	-143,842
Root Rot Model	20,000	20,000	20,000	0	-143,842
Taper equations	20,000	20,000	5,000	15,000	-128,842
G&Y maintenance	15,000	15,000	15,000	0	-128,842
Road and Trail ingress	50,000	50,000	50,000	0	-128,842
VRI Phase 1	1,500,000	0	0	0	-128,842
NVAF's	100,000	0	0	0	-128,842
Operability mapping	175,000	0	0	0	-128,842
G&Y PSP establishment (MOF)	100,000	0	0	0	-128,842
G&Y PSP establishment (UBC)	10,000	0	0	0	-128,842
G&Y PSP establishment (UBC)	50,000	0	0	0	-128,842
VRI Phase 2	240,000	0	0	0	-128,842
CoarseWoody Debris Inventory	165,000	0	0	0	-128,842
OGSI Localization	175,000	0	0	0	-128,842
Totals	8,740,000	3,587,000	3,715,842	-128,842	

CCLUP Biodiversity

Project: Old and Mature Forest Attribute Definition, Cariboo Region

Under guidance of the Biodiversity Committee, a consultant will collect and compile information that will be used by the Committee for the development and testing of mature and old forest seral stage definitions. These definitions will answer the following question:

"What forest attributes best define mature and old forest in selected ecosystems in the Cariboo Region?"

The first year's end product is expected to provide guidance for development and initial testing of mature and old forest definitions for selected forest types in the IDF biogeoclimatic zone. It will build on preliminary work already completed by the Biodiversity Committee. However the scope of this issue is large and seral stage definitions will be developed and tested for other forest types and silviculture systems over the proposed five-year duration of this project.

First Year work will include:

- Compilation and review of existing literature on attribute and process based definitions of seral stage;
- Compilation of data relevant to attribute and process based definitions of seral stage in the Interior Douglas-fir Biogeoclimatic Zone within the Cariboo Forest Region.
- Initial field testing of attribute-based seral stage definitions for IDFD Douglas-fir forests.

It is understood that this project is not linked to the timely identification and designation of OGMA's, which is sufficiently supported by age surrogates from existing inventory and other existing information.

Location: Region Wide

Funding Required.: \$50,000

Delivery Alternatives : Agency delivery (via Biodiversity Committee) with funds provided to agency through annual goals agreement.

Contact: Robin Hoffos 398-4559
Ordell Steen 3984409

CCLUP Biodiversity

Project: Seral Contribution of MPB Stands, Cariboo Region

Under guidance of the Biodiversity Committee, a consultant will collect and compile forest inventory and stand information that will be used by the Committee to answer the following question:

"What management options exist for best meeting biodiversity objectives in landscapes susceptible to Mountain Pine Beetle attack."

This project will:

- Provide guidance on seral contributions of beetle attacked stands under a variety of landscape conditions and provide recommendations for management.
- Compare current and projected landscape condition (patch size and seral representation) to biodiversity objectives for various ecosystems based on Biodiversity Guidebook principles of natural disturbance frequency, intensity and distribution.

Location: Region Wide

Funding Required: \$50,000

Delivery Alternatives: Agency delivery (via Biodiversity Committee) with funds provided to agency through annual goals agreement.

Contact: Robin Hoffos 398-4559
Ordell Steen 398-4409

CCLUP Biodiversity

Project: Patch Size Analysis Pilot, Chilcotin Forest District

Using up to date inventory and logging history information, conduct a patch size analysis by Landscape/BEC Unit for the Chilcotin Forest District. Project will include development of a methodology that can be applied elsewhere in the Cariboo Region. End products will include:

- maps for Landscape Units showing patches of similar aged forest by seral stage
- data summary of proportions of forest in various seral stages by BEC/Landscape Unit

Location: Chilcotin Forest District

Funding Required: \$20,000

Delivery Alternatives: Licensee delivery through Standards Agreement with agency administration (Biodiversity Committee)

Contact: Robin Hoffos 398-4559
Ordell Steen 398-4409

CCLUP Mule Deer Targets

Project:: Mule Deer Winter Range Stand Structure Mapping

Location: Any unmapped mule deer winter ranges within the Cariboo Region. Would really encourage participation by Quesnel Woodlots and Horsefly Woodlots.

Funding Required: \$175,000

Delivery Alternatives: Licensee delivered through Standards Agreement

Contact: Darcy Peel, Habitat Protection Officer, 305-2035

CCLUP Fisheries/ Riparian Targets

Project: Sampling of Riparian Management Zones (Surrogate or actual) to refine SRP modelling inputs

Develop, test and implement a sampling process for inventory of forest attributes in riparian management zones, both surrogate and actual, to confirm or refine inputs to sub-regional planning and landscape unit plans. Significant analytical overlaps of non-timber values are assumed to occur in modelled riparian management zones across the region. However, experience has shown that significant refinement of the overlap modelling assumptions is necessary, especially in the plateau areas of the region

Location: Cariboo Forest Region

Funds Required: \$50 000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administers or Licensee delivers
(Alternative: Agency delivery - Ministry of Forests)

Contact: Harry Jennings 398-4432

CCLUP Fisheries/Riparian Targets

Project: Regional Lakes Classification.

Compiling existing information for inclusion into the Lakes Classification process in the Williams Lake, Quesnel and Chilcotin Forest Districts. Minor Investment to take place in the 100 Mile Forest District for Mop-up.

Project Location: All Forest Districts

Funds Required: \$56,000

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Fisheries Inventory 1:20,000 overview Stream Inventories

Project Location: Region wide highest priority streams not included by Major Licensee Areas

Project Funding: \$11,200

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Winter Limnos.

Helicopter time and contractor time for write-up of collected data.

Project Location: All Forest Districts

Funds Required: \$11,200

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter. May be delivered through a Standards Agreement.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Regional Digital Roll-up of Streams and Lakes.

Compiling existing digital information and creating a Regional Map of fisheries resources in the Cariboo Region

Project Location: Cariboo Region

Funds Required: \$17,100

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter. Will be either an in-house activity performed by the GIS section of MELP or contracted out depending on GIS section capacity.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Regional Lake Inventory.

Inventory of Cariboo Regional Lakes and report write-up for use in Lakes Classification process and resource management.

Project Location: Cariboo Region

Funds Required: \$112,000

Delivery Alternatives: Standards Agreement

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Industry led high priority Stream Inventories within the Quesnel TSA. Slocan, Tolko and Weldwood partners.

Project Location: Quesnel Forest District

Funds Required: \$200,000

Delivery Alternatives: Standards Agreement.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Weldwood Williams Lake Division Stream Inventory.

Phases 4-6 on Seller and Frank Creek
Little River Tributary

Project Location: Horsefly Forest District

Funds Required: \$90,000

Delivery Alternatives: Standards Agreement.

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Stream Inventory within Chilcotin Forest District Mountain Pine Beetle Harvest Areas

Project Location: Chilcotin Forest Districts

Funds Required: \$145,000

Delivery Alternatives: Standards Agreement, Logically with Riverside or YKW

Contact: Tom Wilkinson, Fisheries Inventory Specialist, 398-4553

CCLUP Fisheries/Riparian Targets

Project: Bonaparte River Fish Inventory

Led by Ainsworth and delivered by Kamloops Region MELP

Project Location: 100 Mile Forest Districts

Funds Required: \$110,000

Delivery Alternatives: Standards Agreement

Contact: Dave Tesch, Fisheries Inventory Specialist, 371-6316

CCLUP Visual Targets

Project: Refine current visual resource inventories for more accurate accounting of CCLUP timber access constraints

Current visual inventories in areas slated for upcoming Sub-Regional Plans need to be refined so that only the amount of area required to meet the CCLUP visual targets is constrained.

The above project will include refinement of the current visual resource inventories, utilizing and testing the accuracy of TRIM II, to more accurately define/spatially depict/digitize visually constrained areas and allow more accurate overlaps with other non-timber constraints. The results will contribute to more accurate analysis of constraints in Sub-Regional Planning.

Location: Williams Lake District (outside South Chilcotin SRP area)
Chilcotin District (outside ART SRP area)
Quesnel District (outside Kluskus SRP area)

Funds Required: \$50 000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administers
(Alternative: Agency delivery – Ministry of Forests)

Contact: Harry Jennings 398-4432

CCLUP Watershed/Fisheries Targets

Project: Watershed Integrity Analysis

Project Location: 100 Mile Forest District
Bonaparte River and Bridge Creek.

Funds Required: \$75,000

Delivery Alternatives: Standards Agreement

Contact: Rodger Stewart, Fish and Wildlife Manager, 398-4530

CCLUP Watershed/Fisheries Targets**Project: Horsefly River Juvenile Assessment.**

Assess population dynamics of salmonids within the Horsefly River and major tributaries.

Project Location: Horsefly Forest Districts

Funds Required: \$35,000

Delivery Alternatives: Standards Agreement

Contact: Rob Dolighan, Fisheries Technician, 398-4554

CCLUP Caribou Targets**Project: Eastern Caribou Telemetry.**

Tracking collared animals to monitor use, ranges and key corridors.

Project Location: Cariboo Mountains

Funds Required: \$72,800

Delivery Alternatives: Delivered by the Ministry of Environment or through an Agreement Letter.

Contact: Jim Young, Sr. Wildlife Biologist, 398-4564

CCLUP Caribou Targets**Project: Itchas/Ilgachuz Detail Animal telemetry analysis and habitat suitability model development.**

Production of predictive habitat maps for caribou based on telemetry data.

Project Location: Chilcotin Forest District

Funds Required: \$56,000

Delivery Alternatives: Delivered by the Ministry of Environment or through an Agreement Letter.

Contact: Jim Young, Sr. Wildlife Biologist, 398-4564

CCLUP Caribou Targets**Project: Quesnel Lake Animal Inventory**

Population monitoring for the Quesnel Highland Caribou herd with relationships to habitat use and habitat changes.

Project Location: Horsefly Forest District

Funds Required: \$50,400

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Jim Young, Sr. Wildlife Biologist, 398-4564

CCLUP Caribou Targets**Project: Western Caribou - Kappan Telemetry.**

Population monitoring for the Kappan Mountain Transplant Caribou herd with relationships to habitat use and habitat changes.

Project Location: Chilcotin Forest District

Funds Required: \$72,800

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Jim Young, Sr. Wildlife Biologist, 398-4564

CCLUP Caribou Targets

Project: Adaptive Management of Silvicultural Systems for Caribou

It is critical that the adaptive management trials in eastern and western caribou habitat continue to be monitored to ensure they will meet the goal of maintaining caribou habitat values and achieve the balance described in the CCLUP.

The trials at Satah Mountain are in place while the logging at Baldface Mountain will be completed in 2000. Phase one of the Mount Tom trial will be harvested in 2000. Monitoring of caribou habitat and seedling performance will be essential.

Results from these assessments will aid the operational delivery of the CCLUP caribou strategy.

Location:	Chilcotin Forest District	Funds Required
	Satah Mountain and Baldface Mountain (Riverside operating area)	\$25 000
	Quesnel Forest District	
	Mount Tom	
	(Weldwood operating area and West Fraser TFL #52)	\$50 000

Delivery Recommendation: Agency delivery (Ministry of Forests)

Contact: Harold Armleder

CCLUP Wildlife Targets

Project: Moose Inventory

GPS collaring and tracking of moose to determine wetland buffer use and key wetlands.

Project Location: Williams Lake FD and Big Creek

Funds Required: \$110,400

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Randy Wright, Wildlife Technician, 398-4565

CCLUP Wildlife Targets

Project: Wetland Classification

Classification of wetlands for determining key regional wetlands.

Project Location: Williams Lake FD and Big Creek

Funds Required: \$33,600

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Randy Wright, Wildlife Technician, 398-4565

CCLUP Wildlife Targets

Project: Moose Inventory

Inventory to determine wetland use.

Project Location: Region wide

Funds Required: \$56,000

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Randy Wright, Wildlife Technician, 398-4565

CCLUP Wildlife Targets

Project: Grizzly Bear Habitat use.

Collaring and monitoring of Grizzly bears to determine habitat use and range.

Project Location: Region Wide

Funds Required: \$180,000

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Pat Dielman, Wildlife Technician, 398-4561

CCLUP Wildlife Targets

Project: Furbearer Inventory

Ongoing project and partnership between YKW and MELP.

Project Location: Anahim Lake Area

Funds Required: \$57,000

Delivery Alternatives: Standards Agreement with YKW or may also be delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Randy Wright, Wildlife Technician, 398-4565

CCLUP Wildlife Targets**Project: Red and Blue grassland species inventory.**

Identification and inventory of Red and Blue listed species within the Cariboo grasslands.

Project Location: Williams Lake Forest District

Funds Required: \$80,000

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter. May also be delivered through a Standards Agreement.

Contact: Julie Steciw, Rare and Endangered Species Biologist, 398-4671

CCLUP Wildlife Targets**Project: Moose Inventory**

Wetland classification in the Anahim Lake area. Partnership with YKW and MELP.

Project Location: Chilcotin Forest District

Funds Required: \$40,000

Delivery Alternatives: Standards Agreement .

Contact: Randy Wright, Wildlife Technician, 398-4565

CCLUP Water Quality and Quantity

Project: Water quality and quantity station monitoring

Judson Creek, Windy Creek, Sheriden Creek and Bridge Creek. Partnership with Bridge Creek Watershed Protection Society.

Project Location: 100 Mile and Williams Lake Forest Districts

Funds Required: \$53,760

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Troy Larden, Forest Renewal Plan Regional Coordinator, 398-4656

CCLUP Water Quality and Quantity

Project: Water quality and quantity station monitoring.

New station to be installed this fall according to the recommendations on the Cariboo Region Needs Analysis Report.

Project Location: Cariboo Region

Funds Required: \$13,440

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Troy Larden, Forest Renewal Plan Regional Co-ordinator, 398-4656

CCLUP Water Quality and Quantity

Project: Water quality and quantity station monitoring

Joe Ross Creek

Project Location: 100 Mile Forest Districts

Funds Required: \$7,650

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Troy Larden, Forest Renewal Plan Regional Co-ordinator, 398-4656

CCLUP Water Quality and Quantity

Project: Water quality and quantity station monitoring

Clinton Creek.

Project Location: 100 Mile Forest Districts

Funds Required: \$7,392

Delivery Alternatives: Delivered directly by the Ministry of Environment or through an Agreement Letter.

Contact: Troy Larden, Forest Renewal Plan Regional Co-ordinator, 398-4656

CCLUP Water Quality and Quantity

Project: Horsefly River Sediment Monitoring

The purpose of this project is to document suspended sediment concentrations in some of the main streams of within the Horsefly River Watershed. Repeated sampling has been done at 11 locations. Sampling has been carried out every year since 1994.

This information will allow for the detection of effects of natural and human related transient events such as landslides and long term changes to the land base.

Location : Horsefly Forest District

Funding Required: \$20,000

Delivery recommendation: Licensee delivery through Standards Agreement – Agency Administers.

Contact: Pat Teti Cariboo Forest Region Research Hydrologist 398-4752

CCLUP Water Quality and Quantity**Project: Horsefly Snowmelt**

The purpose of this project is to document how the different sizes of openings affect the amount of snow that accumulates and the rate that it melts. The amount of water being stored in the form snow is measured at intervals throughout the spring at selected plots. This monitoring has been repeated between early April and early June since 1994.

Location: Horsefly Forest District

Funding required: \$10,000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administrators.

Contact: Pat Teti Cariboo Forest Region Research Hydrologist 398-4752

CCLUP Water Quality and Quantity**Project: Water quality and quantity implementation, West Fraser Mills, Williams Lake Division.**

Implementation of recommendations for the North Arm Quesnel Lake Water quality and Quantity project. Collection, analysis and interpretation of data associated with Penfold Creek water quality and quantity project.

Project Location: Horsefly Forest District

Funds Required: \$70,000

Delivery Alternatives: Standards Agreement

Contact: Troy Larden, Forest Renewal Plan Regional Coordinator, 398-4656

CCLUP Grazing/Grassland Targets

Project: 1. Long-term monitoring of grazing resource status and potential grazing impacts on other CCLUP values/targets

The CCLUP states that the current level (1995) of Animal Unit Months (AUM's) will be maintained and that critical information gaps regarding the status of the grazing resource should be addressed through a long-term inventory and research program. Particular attention is paid in the CCLUP to assessment of current alpine grazing for impacts on vegetation and sustainability. Monitoring is also required for potential effects on grazing by achievement of other CCLUP targets and the potential impacts of grazing on other resource values such as rare forest vegetation complexes and rare grassland communities. The required long-term monitoring, and associated inputs to Sub-Regional Plans and Landscape Unit Plans, can be, in part, be accomplished through continuance of the ongoing inventories required under the Range Reference Program and maintenance of the exclosures supporting that program.

Location: **Region-wide**

Funds Required: \$65 000

Delivery Recommendation: Agency Delivery (Ministry of Forests)

Contact: Harry Jennings 398-4432

CCLUP Grazing/Grassland Targets

Project: 2. Inventory of timber types encroaching on grasslands and in-growing

Current visual inventories in areas slated for upcoming Sub-Regional Plans need to be refined so that only the amount of area required to meet the CCLUP visual targets is constrained.

The above project will include refinement of the current visual resource inventories, utilizing and testing the accuracy of TRIM II, to more accurately define/spatially depict/digitize visually constrained areas and allow more accurate overlaps with other non-timber constraints. The results will contribute to more accurate analysis of constraints in Sub-Regional Planning.

Location: Williams Lake District (outside South Chilcotin SRP area)
Chilcotin District (outside ART SRP area)
Quesnel District (outside Kluskus SRP area)

Funds Required: \$50 000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administers
(Alternative: Agency delivery - Ministry of Forests)

Contact: Harry Jennings

CCLUP Tourism/Recreation Targets

Project: Complete Tourism Opportunity Studies for Williams Lake, Chilcotin and Quesnel Forest Districts for input to Sub-Regional Planning

Inventory current tourism industry and resources used for filling information gaps in current and future sub-regional planning processes. Inventory tourism activities that could take place in the study areas. There is often significant overlap with recreational uses and resources of the study areas as well. Products include maps and text identifying the kinds, and extent, of tourism that are taking place and could take place. Input of this nature will permit more realistic and knowledgeable analysis of timber and non-timber CCLUP targets, and allow better projection of potential non-timber value overlaps.

Location: Williams Lake District
Chilcotin District
Quesnel District

Funds Required: \$150 000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administers
(Alternative: Licensee delivery through Standards Agreement – Licensee administration)

Contact: Brenda Hartley 398-4202

CCLUP Wildcraft Targets

Project: Inventory of current wildcraft activities and known associated management issues

Information is currently lacking or unavailable on the extent of current and potential wildcraft resource use, making credible input to sub-regional and landscape unit planning very difficult. The CCLUP instructs that a solid database of the wildcraft resource should be established and is necessary to ensure effective implementation of the wildcraft targets. This project will allow the scoping of a process to collect inventory information on the wildcraft resource.

Location: Cariboo Forest Region

Funds Required: \$10 000

Delivery Recommendation: Licensee delivery through Standards Agreement – Agency Administers or Licensee delivers
(Alternative: Agency delivery - Ministry of Forests)

Contact: Harry Jennings 398-4432

TRIM2

Project: TRIM2

Continuation of the TRIM2 Program is critical in that it serves as the base for the derivation of data critical to meeting CCLUP Targets information needs such as Biodiversity, Mule deer, Riparian and Fisheries.

The Program was scheduled over 5 years. Activity has occurred over 2 years with reduced funding in the second year. Recommended funding has been increased to allow completion within the original the five-year. Forest Renewal proposes to fund this project out of the annual pool of funds rather than have licensees contribute proportionally out of the MYA funds.

Location:
Region Wide

Funds Required
\$500,000

Delivery Recommendation: Licensee delivery through standards agreement with Agency support. Continuation of previous arrangement with West Fraser Mills Quesnel serving as the lead MYA holder with Steering committee involvement of other MYA holders and Agencies (MOF & MELP)

Contact: Troy Larden 398-4656

Unsalvaged Losses

Project: Pilot study of survey methodology

Unsalvaged timber volumes that are lost as result of catastrophic events (fire, wind and insects) is a direct reduction to annual available volume prior to the determination of the Annual Allowable cut (AAC) for a Management Unit (TSA, TFL). Accurate estimation has a direct effect on AAC.

Survey methodology has been developed and tested. The methodology has been amended as a result of the testing. A pilot study to determine the accuracy of the methodology prior to the application for TSR 3 is required. If approved for use in TSR, surveys in each management unit (TSA's and TFL's) in the Cariboo Forest Region in subsequent years prior to TSR3 will be required.

Location:

Region Wide – management unit specific

Funds Required

\$20,000

Delivery Recommendation: Licensee delivery through standards agreement with Agency support.

Contact: Eric Johansen/Leo Rankin 398-4945

Mountain Pine Beetle Workshop

Project: Organization of an International Workshop

A workshop of international experts to review past methods of control and alternative approaches to management and control of Mountain Pine Beetle is planned. The delivery agent, through a qualified contractor will be responsible for the organization of the workshop; this includes: soliciting papers for presentation by acknowledged local and international experts in MPB research and control; Arranging for a facility(s) for the workshop; Arranging for travel and accommodation for workshop participants; Facilitation during the workshop, and; preparation of a workshop report that will include papers presented, discussions and recommendations.

Location:

Williams Lake

Funds Required

\$50,000

Delivery Recommendation: Licensee delivery through a standards agreement with Agency support.

Contact: Leo Rankin 398-4392
Robin Hoffos 398-4559

Growth and Yield Permanent Sample Plot Remeasurement

Project: Remeasure permanent sample plots in the Quesnel Forest District.

137 PSP's that were established in 1969, 1979 and 1989 require remeasurement. 52 PSPs are east of the Fraser River and 85 PSPs (2 projects 42 PSPs Nazko Road, 43 PSPs Blackwater Road) are west of the Fraser River.

Location:	Funds Required
Quesnel Forest District	\$195,000

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project management

Contact: Sam Davis 398-4435

Projection of Future Volumes of Regenerated Stands

Project: Develop methodology for monitoring regenerated stands growth.

The volumes of currently projected regenerated stands may underestimate true yield of the productive capacity of the sites they occupy. There is no currently accepted methodology to monitor the growth of regenerated stands that could provide data that could be used to validate and/or adjust the currently used models (VDYP and TIPSy)

A report that consists of a review of monitoring methodologies from other jurisdictions is required with recommendations for possible application to British Columbia.

Location:	Funds Required
Region Wide	\$10,000

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Sam Davis 398-4435

Prognosis Calibration

Project: Collect field data for Prognosis calibration localized to the Cariboo Forest Region BECs

Selection harvesting is used to harvest, primarily, Douglas fir stands and generates approximately 20% of the AAC in the Williams Lake TSA. TSR does not currently model selection harvesting well. Various models exist to model this harvesting, but require localization of input data. The recommended model for use is Prognosis.

Calibration and localization of the Prognosis model requires further field data collection.

Location:	Funds Required
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Region Wide	\$50,000
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Williams Lake and 100 Mile House TSAs

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Sam Davis 398-4435

OAF adjustments

Project: Collect and analyse data for TIPSy OAF adjustments by TSA and TFL

TSR used values of 10 – 15% for TIPSy OAF 1 and 5% for OAF2. The TIPSy model assumes fully stocked stands. OAF1 is used to adjust the model for less than full stocking i.e. gaps and voids in stocking due to unmapped (2 ha) non-productive areas within a block. OAF2 adjusts the TIPSy model for losses due to disease over time. OAF2 starts at zero for young stands, gradually increasing up to 5%+ by 100 years (stand Age).

OAF1 values may be reduced if evidence can be provided through surveys (Regen delay, Free to grow, etc.). There is little opportunity to reduce OAF2 values.

Survey data is needed to reduce OAF 1 values

Reduction of OAF1 values will have a direct effect on Long term harvest levels

Location:	Funds Required
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Region Wide	\$150,000
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By TSA and TFL

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Eric Johansen 398-4945

ESA Adjustments

Project: Assessment of possible of Correlation between TSM ESA's in the Cariboo Forest Region

TSR is currently using ESA classification that over 20 years old. As well there is a general lack of confidence in the reliability of ESA soils mapping. Reconnaissance level Terrain Stability Mapping exists over a large part of the Cariboo Forest Region. Some correlation between ESAS and TSM has been noted. Potential exists to use TSM /ESA data where TSMS are not yet done.

An assessment of the correlation between TSM mapping and ESAs is needed. A sample area (not yet selected – depends on MYA holder) will be assessed.

Location:	Funds Required
Region Wide	\$50,000

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Muhammed Sabur 398-4398

Root Rot Model

Project: Review and testing of Root Rot Predictive Models and report

TSR assumes root rot losses are included in VDYP at endemic levels. VDYP plots were established 25 to 35 years ago and do not reflect current conditions. Actual losses by TSA are unknown. Predictive root rot models exist.

A review of root rot models that could be applied to the Cariboo Forest Region is required. Models that may be applicable will have to be tested prior to application. Proprietary models may have to be purchased. A report and recommendation on the models tested will be completed.

Location:	Funds Required
Region Wide	\$20,000

Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Leo Rankin 398-4392

Taper Equation Localization

Project: Taper Equation Localization

TSR uses VDYP to project future volumes of unmanaged stands. Taper functions are localized to the Forest Inventory Zone(FIZ) level only. To better reflect local conditions taper equations need to be localized to the TSA and BEC level.

Resources Inventory Branch has recompiled the database to BEC and TSA levels.

Review and re-analysis of data in a report for the Cariboo Region TSAs

Location:	Funds Required
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Region Wide	\$5,000
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Williams Lake and 100 Mile House TSAs	
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Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Sam Davis 398-4435

Ingress on Old Roads

Project: Assess Ingress on Old roads and Right-of Way (R/W) widths of roads

TSR assumes no ingress on operational roads and related trails. Nominal road widths based on current standards with no ingress are also assumed. The amount of ingress on operational roads and trails is unknown. Main road R/W width achievement and ingress is unknown.

Surveys and/or samples for TSR purposes are required

Location:	Funds Required
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Region Wide	\$50,000
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By TSA and TFL	
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Delivery Recommendation: Licensee delivery through a standards agreement with Agency project support

Contact: Eric Johansen 398-4945

**Strengthening Sustainable Forest Management Strategic Objective
Cariboo Forest Region Recommended List of Activities for
Forest Renewal BC funding for the 2000/01 fiscal year**

Activity	Recommended funding for 2000/01(Sept 2,1999)	Additional Suggested funding (Oct.7, 1999)*
Land Use Planning Activities		
CCLUP Biodiversity Targets	\$200,000	
CCLUP Mule Deer Targets	\$160,000	
CCLUP Fisheries/Riparian Targets	\$400,000	\$250,000
CCLUP Visual Targets	\$50,000	\$100,000
CCLUP Watershed/Fisheries Targets	\$200,000	
CCLUP Caribou Targets	\$250,000	
CCLUP Wildlife Targets	\$467,000	\$50,000
CCLUP Water Quality and Quantity	\$105,000	
CCLUP Grazing Targets	\$85,000	
CCLUP Tourism/Recreation Targets	\$50,000	\$100,000
CCLUP WildCraft Targets	\$10,000	
Sub -Total	\$1,977,000	\$500,000
Timber Supply Review Activities		
TRIM II	\$500,000	
Unsalvaged Losses	\$20,000	
Mountain Pine Beetle Workshop	\$30,000	
Growth and Yield Remeasurements	\$195,000	
Monitoring SIBEC	\$10,000	
Prognosis Calibration	\$50,000	
OAF Adjustment	\$150,000	
ESA assessment	\$50,000	
Root Rot Prediction Model	\$20,000	
Taper Equation Localization	\$20,000	
Growth and Yield Maintenance	\$15,000	
Road ingress and Main Road Width Survey	\$50,000	
Sub-Total	\$1,110,000	
Total	\$3,087,000	\$500,000

* Additional Funds made available October 7, 1999. (Communication from Stan Gripich to Brian Smith)

